

Appl. No. 09/681,571
Amtd. Dated 16 May 2005
Reply to Office action of 22 March 2005

REMARKS/ARGUMENTS

The Final Office Action of 22 March 2005 has been carefully considered. Applicant notes that the Examiner continued to provide some "Claim Interpretations," a rejection of claims 1-17 under 35 USC 112, first paragraph, on enablement, a rejection of claims 1-17 under 35 USC 112, first paragraph on written description, a rejection of claims 1-17 under 35 USC 102(b), and a rejection of claims 1-3, 5, 7-9, and 11-17 under 35 USC 103(a). Claims 1-17 remain in the application.

In response to the Applicant's request that, if the Examiner determines that such a conversation would facilitate the examination, the Examiner please contact the undersigned representative to arrange for a convenient time to hold the conversation, the Examiner suggested Applicant complete a PTLO-13A form. Applicant completed this form and faxed it to the central facsimile number on 3 May 2005. Applicant called to check the status and attempted to fax another request on 10 May 2005 but had transmission problems. In the meantime, Applicant prepared a response for written submission.

Claim Interpretations

Applicant again respectfully traverses two of the definitions. The following is a copy of Applicant's statements in the prior Amendment:

Applicant respectfully ... submits that a keybar is not synonymous with a "key" definition 2 of the IEEE dictionary (bar that by being recessed partly in each of two adjacent members serves to transmit a force from one to the other). As stated in Applicant's Specification paragraph 2, keybars are attached to a stator by two flanges for meeting mechanical requirements of the stator. Although there is a "dovetail" or "key" type section of a keybar (as can be seen in FIG. 2), this is not synonymous with a standard key of the type referenced in the IEEE dictionary where two angled elements are inserted into opposing ends of an opening to support key type coupling.

In the present office Action, the Examiner wrote that part of the reason for including a definition is that "The Examiner was unable to locate any prior art that contained the term 'keybar' " but " did locate a definition for 'key' that was "defined as a bar" However, when doing a search on www.google.com and the USPTO search engines of "keybar stator," Applicant found that the term "keybar" has precedent. As non-limiting examples, Applicant found its use in US4916803, US4837471, and US6104116, as well as the Perkins reference cited by the Examiner with respect to the 103 rejection (discussed below).

Applicant notes that the Examiner objected to the Applicant's description of the flanges. Applicant notes that that section was used merely for explanation type purposes and not to imply that such language is in the claims. Applicant notes that the Examiner objected to the Applicant's description of the IEEE definition. Applicant was attempting to show that the key of the type described in the definition was different than Applicant's keybar.

35 USC 112, first paragraph

Applicant respectfully traverses the rejection of claims 1-17 under 35 USC 112, first paragraph. The Office Action references an enablement rejection on page 3 and a written description rejection on page 5.

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As stated in the prior Amendment:

With respect to enablement, Applicant respectfully traverses the ... statement that "advanced analytical methods" and "time stepping finite elements with rotation" mean that one of ordinary skill on the art would require too much experimentation. Applicant respectfully submits that commercially available products are available and were available at the time of filing. Three commercial vendor packages include, for example, Maxwell™ simulation software available from Ansoft Corp. (<http://www.ansoft.com>), Flux3D simulation software available from Magsoft (http://www.flux3d.com/flux3d_index.html), and MagNet simulation software available from Infolytica Corp. (<http://www.infolytica.com/en/products/magnet/>). Additionally, Applicant further indicated in paragraph 13 that determination can be made by physical testing itself. This would not even require such software or "undue experimentation."

With respect to written description, Applicant has clarified the fact that what is being measured is voltage or current and what is being minimized is voltage. Further, as can be seen from the statements above, paragraph 13 mentions both physical testing and software. Such software is and was available. Applicant was not trying to claim a specific type and was merely indicated that physical testing or simulation were paths toward selecting the design with minimal keybar voltage.

The Examiner interpreted this as some sort of admission that the entire claimed technique itself was known (paragraph 42 (page 26)). However, what was known is that, given a particular parameter and design constraints, such "advanced" tools can be programmed to find optimum settings. Basically, such software tools enable a user to input the design to be validated and to receive information about the design (meaning what is the effect if X keybars are used and/or if the phasebelts are offset by Y degrees) – they do not create the design itself. They are not required, but can save time and cost as compared with physical testing. Applicant notes that paragraph 42 (page 26) of the Office Action has some language about mets and bounds which Applicant does not fully understand, and Applicant requests further information on this statement.

Applicant respectfully submits that claims 1-17 are in full compliance with the requirements of 35 USC 112, first paragraph. Withdrawal of the rejection of claims 1-17 under 35 USC 112, first paragraph, is respectfully requested.

35 USC 102(b) rejection of claims 1-17 based on "Applicant's own admission"

As stated above, Applicant did not make an "admission" in the prior Amendment. Instead, Applicant referenced commercially available software for testing of various keybar position or number effects. Although they, as well as other modeling techniques, were usable to validate the invention, Applicant traverses any suggestion that such software packages described or disclosed it.

35 USC 103(a) rejection of claims 1-3, 5, 7-9, and 11-17

Applicant respectfully traverses the rejection of claims 1-3, 5, 7-9, and 11-17 under Perkins et al., "Special Problems in the Installation of Large Electrical Machines," Power Engineering Journal, Jan. 1992, Vol. 6, Issue 1, pp. 21-31 (hereinafter "Perkins") in view of Gieras et al., "Calculation of Synchronous Reactances of Small Permanent-Magnet Alternating-Current Motors: Comparison of Analytical Approach and Finite Element Method with Measurements," IEEE Transactions on Magnetics, Sept. 1998, Vol. 34, No. 5, pp. 3712-3720 (hereinafter

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"Geras).

Applicant respectfully submits that the applied references do not teach, suggest, or disclose (either individually or in combination) the following aspects of the independent claims:

Claims 1, 11, and 16: determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts; and selecting a position of the keybars with respect to a position of the phase belts which provides minimal keybar voltage.

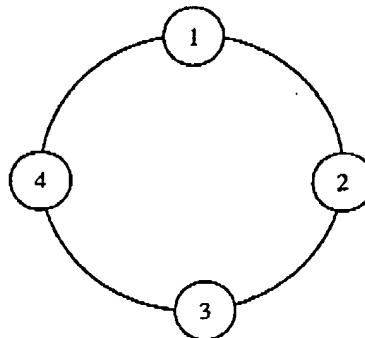
Claims 5, 13, and 17: determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts, adjusting the number of keybars, and adjusting the number of stator slots; and selecting a position of the keybars with respect to a position of the phase belts, a number of the keybars, and a number of stator slots which collectively provide minimal keybar voltage.

Claims 7 and 14: determining effects on at least one of keybar voltage or keybar current of adjusting the number of keybars; and selecting a number of the keybars which provides minimal keybar voltage.

Claims 9 and 15: determining effects on at least one of keybar voltage or keybar current of adjusting the number of stator slots; and selecting a number of the stator slots which provides minimal keybar voltage.

For example, with respect to Claim 1, the Office Action (near top of page 9) states that Perkins "does not expressly teach the use of 'phase belts' or 'number of stator slots.'" However, Applicant submits that these are critical concepts of claim 1.

The Office Action cites page 23 (stator building) which talks about mechanical coupling of the keybars and page 28 (testing) which refers to testing of the cores. With respect to the stator building section, Applicant interprets the description as being directed to the "sequence of the [timing of the] welds" so as not to create any mechanical instabilities. As a simple example, welding in the order of 1, 2, 3, 4 will yield different mechanical dynamics than 1, 3, 2, 4. This is the type of assembly consideration referenced in Perkins.



With respect to the testing section, this section does not reference the keybars or adjusting the keybars in any manner (much less any manner to provide minimal keybar voltage) as a result of the testing. Instead Perkins relates to testing to see if machine converts mechanical power to electrical power.

Geras does not overcome the above noted deficiencies of Perkins. Geras does not disclose, teach, or suggest modifying keybar design to minimize keybar voltage. In Geras, the phrase "phase belt" is used once to

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generally describe a group of conductors belonging to a particular phase of the machine that are placed in sequential order. The placement of the phase belt is not described as being optimal with respect to keybars.

Claims 11 and 16 have analogous recitations in comparison with claim 1.

Claims 7 and 14 refer to number of keybars as compared with the "phase belt positions" of claim 1. The basic arguments remain applicable, however, with respect to Perkins describing mechanical assembly techniques and verifying power conversion and Gieras likewise not being directed to minimizing keybar voltage.

Claims 9 and 15 refer to number of stator slots are compared with "phase belt positions" of claim 1. The basic arguments remain applicable, however, with respect to Perkins describing mechanical assembly techniques and verifying power conversion and Gieras likewise not being directed to minimizing keybar voltage.

Claims 5, 13, and 17 refer to a combination of phase belt position, number of keybars, and number of slots and are likewise believed to be in condition for allowance.

Each remaining claim depends from one of the above discussed claims 1, 5, 7, 9, 11, and 13-17.

Accordingly, Applicant respectfully submits that the claims define allowable subject matter over the applied art. Withdrawal of the rejections is respectfully requested.

Respectfully submitted,

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